

# **The Use of Scripted Play in Speech Production for Young Children with Disabilities**

**Renée Chong**

Department of Special Education, Faculty of Education, Monash University,  
Melbourne, Australia  
e-mail: rcho11@student.monash.edu

**Abstract:** This article used scripted play as a language intervention strategy to increase the mean length of utterance (MLU) for three young children with disabilities. The findings of this study show that the MLU for all three children increased when scripted play was used. All the children also further increased their MLU during post intervention.

**Key words:** MLU, scripted play, disabilities

Many children with developmental delays have language impairments. Children who fail to acquire a level of language, which allows them to fully integrate into community life, often experience frustration and isolation. This could lead to problems in social and behavioral development and hinder intellectual and academic progress. Early language intervention is detrimental in overcoming these handicaps in emotional, social and cognitive development.

Language learning for young children, most often, occurs during play. There has been much research in the positive effects of teaching language skills to young children with developmental delays through play (Butterfield, 1994; Carter, 2001; Lifter, Sulzer-Azaroff, Anderson, & Cowdey, 1993).

Schank and Abelson (1977) were the first to use the term “script” to describe the ways in which people organize information relating to familiar situations in everyday life. Since then, researchers have used the term “scripted play” to refer to a teaching strategy that teaches social play through the use of a script. Research has shown that the use of scripted play has improved social and language behaviors in children with disabilities (Goldstein & Cisar, 1992; Goldstein, Wickstrom, Hoyson, & Jamieson, 1988; Neeley, Neeley, Justen, & Tipton-Sumner, 2001). Therefore, the purpose of this study is to investigate the effects of the use of scripted play in the language production of young children with developmental delays.

## METHDOLOGY

### Participants

The participants were three preschoolers who attended a preschool program in a special school in Singapore. All three children were diagnosed with moderate developmental disabilities. The medium of instruction of the schools in Singapore was English.

Josef was five years old. He could understand a few basic instructions such as: “*Stand up*”, “*Sit down*”, “*Come here*” and “*Look at me*”. He could speak one to two word phrases and could make verbal requests, such as “*Want drink*”, “*Go toilet*”, and “*Play here*”. However, he was extremely shy and would only interact with those whom he was familiar with (i.e. his family, teachers and classmates). He would become withdrawn, anxious and could not say a word in the presence of strangers. This was typically difficult for his parents when they tried to integrate him in community settings where such interaction was required, such as the public library where regular story-telling sessions for young children were held, or in social functions such as birthday parties or wedding dinners.

Slater was six years old and could utter a few functional words like “*Eat*”, “*Drink*” and “*Toilet*”. As he had poor expressive and receptive communication skills, he often displayed disruptive behaviors, such as temper tantrums to show frustration and making inappropriate noises to seek attention.

Rachel was five years old and was a very excitable child. She babbled rapidly and her utterances consisted mainly of fillers, such as “*Mm*”, “*Ah*”, and “*Oh*”. Occasionally, single intelligible words could be heard in between her babbling. She also had the tendency to attempt to speak out of turn. She could understand simple instructions but very often would not have the patience to wait for the person to complete his/her request before running off to carry out whatever she was supposed to do.

### Setting

The intervention took place in the participants’ classroom. There were three play scenes (refer to Appendix). The first was a grocery shop scene. A table was set up to serve as a store and plastic food items and empty food cartons were displayed on the table. The second was an elevator scene. A board partition on wheels served as the elevator door. The third was a food

court scene. A table served as the food counter. Plates and cups of various colors were displayed on the table to serve as different types of food and drinks.

### Dependent Measure

The dependent measure was the mean length utterance (MLU), following the computation adapted from Brown (1973, p. 54). This was calculated by dividing the total number of morphemes by the total number of utterances in the first 50 utterances. Unintelligible or partially unintelligible utterances were not included. The following were the counting rules for morphemes:

- a) The same stuttered word was counted as once.
- b) Repetitive words produced for emphasis were counted separately. Hence, “yes, yes, yes” was recorded as three counts.
- c) Fillers (e.g. um, ah) were not counted.
- d) Compound words (two or more morphemes) e.g. *notebook*, *chairman*; proper names e.g. *Mr Johnson*, *Eiffel Tower*; and ritualized reduplications e.g. *knock-knock*, *ah-choo*, counted as one morpheme.
- e) All verbs in the past tense (e.g. did, got) counted as one morpheme.
- f) All diminutives (e.g. mummy, barbie) counted as one morpheme.
- g) All auxiliaries (e.g. are, has, can) and all catenatives (gonna, wanna) were counted as one morpheme. All inflections e.g. possessive ('s), past tense (*ed*) and continuous tense (*ing*) counted as separate morphemes.

### Free Play Observation (Pre-intervention/Post intervention)

Free-speech samples were collected from each participant during pre and post interventions (total of 10 sessions each). These served to compare the data for the two phases. These samples were collected through a procedure adapted from Miller (1981, p. 14).

For each pre and post intervention, a representative free-speech sample was collected for 10 play sessions (each session terminated when the participant produced 50 utterances) with the participant interacting with a) his/her parent/carer; b) his/her peers. An audiotape was used to transcribe the speech of the parents/carers, peers and the participants. Every utterance of the parents/carers, peers and the participants was transcribed. Taking contextual notes while collecting the speech samples helped in interpreting

the events that took place during the speech production. Non-verbal gestures, eye contact, and how objects were used were recorded as contextual notes. Recording of both the adults' and children's utterances complemented the contextual notes in providing a better understanding of the whole context. Recording of both the adults' and peers' utterances showed the level of expressive and receptive skills of the participant.

### Intervention (Scripted play)

The three participants were trained together for the three script scenes. Each training session lasted for 15 minutes. The sessions were conducted everyday, five days a week over the ten-week school term. During training, the experimenter modeled the script and prompted the participants to verbalize the script for each respective role. The three participants took turns to play each of the roles designated for each script scene.

Initially, the script was modified according to the speech ability of each participant, for example, *"I want some apples please"* was modified to *"Apples please"*. Gradually when the participant was able to vocalize more words in succession, the phrase was extended to *"Some apples please"*, and then to *"Want some apples please"* and then finally to the original sentence in the script. When the participants were more familiar with the script, the script was further modified by the participants initiating the substitution of the names of grocery/food items (grocery shop/ food court scenes) and level numbers (elevator scene) to those items/numbers that they were familiar with, for example, in the grocery shop scene, *"I want some apples please"* was changed to *"I want some soap please"* and in the elevator scene, *"Level 3 for me"* was changed to *"Level 10 for me"*. In the final stage, the participants were taught to increase the length of their utterances in the script depending on their expressive abilities. Some examples were, *"I want some red, juicy apples please"* and *"No, I don't want chili because I don't like spicy food"*.

## **FINDINGS AND DISCUSSION**

### **Josef**

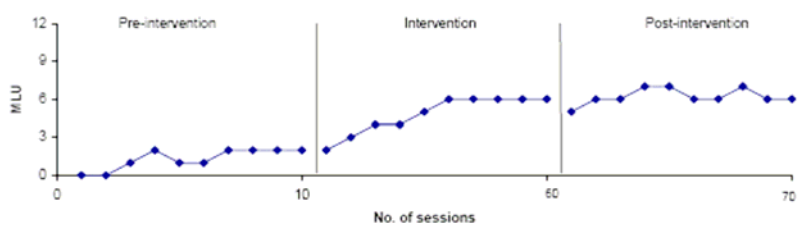
Excerpts from Josef's free-speech samples are shown as follows:

**Table 1. Josef's Free-Speech Samples during Pre-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	Play what, Josef?	3	0	0
Josef	1.	Ball	0	0	1
Parent	2.	Play ball with Slater?	4	0	0
Josef	2.	(Shakes head)	0	0	0
Parent	3.	Would you like to roll ball to me?	9	0	0
Josef	3.	(No response)	0	0	0
Parent	4.	Roll ball, Josef?	3	0	0
Josef	4.	Yes! (Rolls ball)	0	0	1

**Table 2. Josef's Free-Speech Samples during Post-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	Play what, Josef?	3	0	0
Josef	1.	Play car. Play train (takes toy cars and trains)	0	0	4
Parent	2.	Would you like to play with Slater?	7	0	0
Josef	2.	Tommy. Play with Tommy.	0	0	4
Parent	3.	Tommy! Want to play car and train with Josef?	9	0	0
Tommy	1.	Yes.	0	1	0
Parent	4.	Here comes Tommy.....	3	0	0
Josef	3.	Tommy...Car...(points to car). Mummy, I want some juice please.	0	0	8
Parent	5.	Oh! Josef wants juice? Josef is thirsty?	7	0	0
Josef	4.	(Nods head) Juice please.	0	0	2
Parent	6.	Here's some juice (gives juice to Josef).	4	0	0
Josef	5.	(Takes juice) Thank you.	0	0	2
Parent	7.	You are welcome.	3	0	0



**Figure 1. Josef's MLU during Pre-Intervention, Intervention, and Post-Intervention Phases**

The MLU for Josef during pre-intervention was 1.3 (refer to Fig. 1). He would often use gestures (e.g. nodding, pointing) to communicate (refer to Table 1). He was also unable to understand long phrases. When his parent asked him whether he would like to roll the ball to her (nine-word question), there was no response from Josef. However, when his parent shortened her question to three words "Roll ball, Josef?" he was able to give an affirmative answer ("Yes").

During intervention, Josef was initially quite withdrawn and had to be coaxed to say lines from the script. However, after some time, he was used to the routine script training and was more at ease with his peers. At first, Josef was only able to deliver one to two-word utterances, such as "Yes" and "Some milk". Gradually, he was able to say "Yes, that's all" and graduated from "Some milk please" to "I want some milk please". He was also able to substitute words like "oranges", "pears" for "apples" in the grocery shop scene and "fish" for "chicken" in the food court scene. His MLU for the first half of the intervention phase was 3.6 (refer to Fig. 1). During the final stages of the intervention, he was able to expand his utterances to "I want some fried prawn noodles please" and "I am going to the shop on level 8". Hence, his MLU increased to 6 for the second half of the intervention phase. His overall MLU for the intervention phase was 4.8.

Josef was able to generalize what he learnt during intervention to post intervention settings. For example, he always said, "I want \_\_\_\_ (name of item) please" during post intervention phase instead of just naming the item during the pre-intervention phase (refer to Table 2). He would also always say "Thank you" after receiving the item during the post-intervention phase. This never occurred during pre-intervention phase. Josef was also able to understand longer phrases. When his parent asked him whether he would like to play with Slater (seven-word question), Josef answered that he preferred to play with Tommy instead. His MLU increased to 6.2 during post intervention.

**Slater**

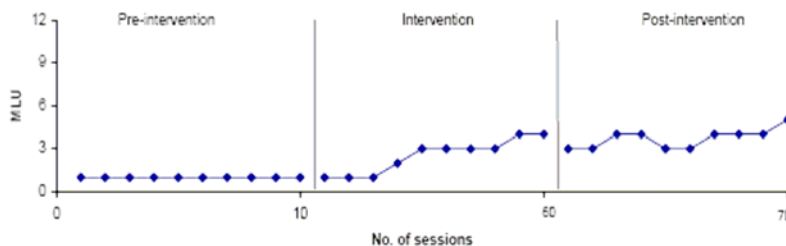
Excerpts from Slater's free-speech sample are shown as follows:

**Table 3. Slater's Free-Speech Samples during Pre-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	Want to eat, Slater?	3	0	0
Slater	1.	Eat.	0	0	1
Parent	2.	Cookie or bun?	3	0	0
Slater	2.	Eat (points at cookie)	0	0	1
Parent	3.	Slater wants cookie?	6	0	0
		Cookie for Slater (gives cookie to Slater)			
Slater	3.	(Takes cookie)	0	0	0
Parent	4.	Share cookie with Josef?	4	0	0
Slater	4.	(Takes another cookie from plate and offers to Josef) Eat!	0	0	1

**Table 4. Slater's Free-Speech Samples during Post-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	Want apple or pear, Slater?	5	0	0
Slater	1.	Want apple please. Thank you.	0	0	5
Parent	2.	Apple for Slater (gives apple to Slater) Share apple with Josef, Slater?	8	0	0
Slater	2.	(Takes apple) Share pear with Josef.	0	0	4
Parent	3.	(Laughs) Slater doesn't want pear, so give pear to Josef?	10	0	0
Slater	3.	Want drink please. Thank you.	0	0	5
Parent	4.	Here is your drink (gives drink to Slater)	4	0	0
Slater	4.	(Takes drink) Slater drink. Thank you.	0	0	4
Parent	5.	You are welcome.	3	0	0



**Figure 2. Slater's MLU during Pre-Intervention, Intervention, and Post-Intervention Phases**

Slater's MLU during pre-intervention was one. His basic vocabulary was very limited and he could only say a few basic words, for example, during snack routine (refer to Table 3), when his parent asked him whether he would like to eat, he answered "Eat", meaning he wanted to eat. He used the same word "Eat", while pointing to the cookie, when his parent offered him a choice between a cookie and bun, "Eat", in this case, meant that he wanted the cookie rather than the bun. Slater used the word "Eat" again when he offered a cookie to Josef, asking the latter to take the cookie. The fact that Slater used only one word "Eat" to answer three different questions showed his limited vocabulary.

The MLU for Slater during the first half of the intervention was 1.6 but it increased to 3.4 during the second half of the intervention (refer to Fig. 2). He could initially produce one word (e.g. "Morning", instead of "Good morning" and "Apples" instead of "I want some apples please") but gradually could say a maximum of four words in an utterance (e.g. "Want some apples please" and "Going to level 8"). His overall MLU for this phase was 2.5.

Slater's two favorite phrases from the script were "Want \_\_\_\_ please" and "Thank you". He was able to use these two phrases in the correct context during post intervention (refer to Table 4). His habitual use of the phrase "Thank you" helped increased his MLU during post intervention to 3.7 (refer to Fig. 2).



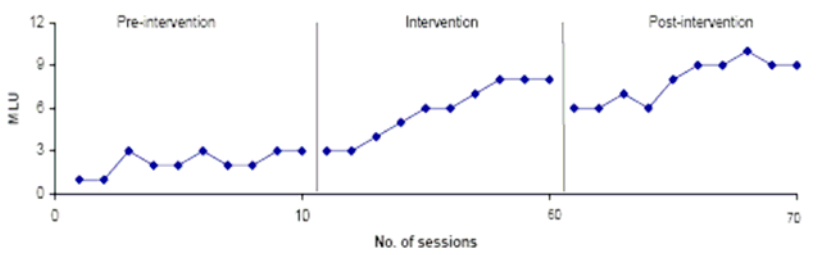
## Rachel

**Table 5. Rachel's Free-Speech Samples during Pre-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	What are you drawing, Rachel?	5	0	0
Rachel	1	Hmmm... Arrr.. Mummy..ooooo... Mummy...ooooo	0	0	2
Parent	2.	You are drawing mummy? That looks beautiful!	7	0	0
Rachel	2.	Arrr...ffffff...Mummy, mummy...fffff (points to parent).	0	0	2
Parent	3.	What is mummy doing here? (points at drawing)	5	0	0
Rachel	3.	Gah-gah! Mummy gahgah! (shakes body) Mummy gah-gah!	0	0	2
Parent	4.	Ah! Mummy is dancing. That's great! Mummy is dancing!	9	0	0
Rachel	4.	Mummy...ooo...ah...ffffff fly....ffff...fly moon(shakes body, points to the moon that she drew).	0	0	4
Parent	5.	Mummy is flying to the moon? I see, I see, here is the moon...	14	0	0
Rachel	5.	Mummy...ffffff fly....ffff...fly moon (nods her head).	0	0	4

**Table 6. Rachel's Free-Speech Samples during Post-Intervention**

Speaker	Utterance No.	Dialogue	Morpheme Count		
			Parent/ Carer	Peer	Participant
Parent	1.	Rachel is playing with Legos with Vince. What are you building, Rachel?	12	0	0
Rachel	1.	Greeesh! Ho! HmMMM.. Fire! Big car! Good! Fire! Car! Come! Oi, oi !	0	0	7
Vince	1.	Rachel build fire-engine.	0	3	0
Parent	2.	I see! Rachel is building a fire-engine!	7	0	0
Vince	2.	I build tower...see? I build tower!	0	7	0
Parent	3.	Is your tower on fire, Vince? Is Rachel's fire-engine coming to save your tower?	15	0	0
Vince	3.	No.....	0	1	0
Rachel	2.	Big fire! Red fire! Want water please! Red car give water...Pshhh! Pshhhh!	0	0	11
Vince	4.	No, my tower no fire! Rachel's fire-engine go away!	0	10	0
Parent	4.	Right, Vince's tower is not on fire. Rachel, your fir-engine has done its job. Your fire-engine can go now.	20	0	0
Rachel	3.	Go away! Go away! Hfrphhhhh! Ahhh! Red, big car go away please!	0	0	10



**Figure 3. Rachel's MLU during Pre-Intervention, Intervention, and Post-Intervention Phases**

Rachel's speech was peppered with fillers during pre-intervention (refer to Table 5). Occasionally, intelligible words would appear between fillers. She had difficulties expressing herself and had to use gestures to communicate. Some of her fillers appeared to be her attempts at verbalizing certain words, for example, "fff" for "fly" and "ooo" for "moon". These fillers seemed to be the precursors of intelligible words. Her MLU for this phase was 2.2.

During intervention, Rachel was very eager to learn her lines, as well as her friend's lines. She would speak out of her turn and wanted to play all three roles in the script. As a result, she was the fastest amongst the three to learn her lines. She soon gradually learnt to wait for her turn to speak without interrupting the others. She even experimented with various adjectives, trying them with different nouns. For example, when she was taught to say, "*I want some red, juicy apples please*", she tagged the adjectives "*red, juicy*" on potatoes, milk and eggs as well. It took a while for her to understand what "red" and "juicy" meant. However, once, she understood the meanings of the adjectives, she was able to use them appropriately, for example, "*brown potatoes*", "*big eggs*" and "*cold drinks*". Her MLU for the first half of the intervention was 4.2 and 7.4 for the second half. Her overall MLU during intervention was 5.8 (refer to Fig. 3).

Rachel used less fillers and more intelligible words during post intervention phase as compared to pre-intervention phase (refer to table 6). She was able to appropriately use those adjectives that she learnt during intervention in the post intervention phase. For example, she learnt how to describe apples as "*red*" and eggs as "*big*" during intervention and she transferred this learning during intervention to describe fire and car as "*big*" and "*red*". Her MLU for this phase was 7.9.

## CONCLUSION AND SUGGESTIONS

The MLU for all three participants increased dramatically during the intervention phase. In addition, all three participants also increased their MLU during post-intervention phase. Most importantly, during post-intervention phase, all three participants were able to adapt and appropriately use the phrases they had learnt from the scripted play.

The participants' behavior also improved through scripted play. Josef became less withdrawn and was more confident in conversing with unfamiliar people whom he met in public settings. Slater became less disruptive and rarely threw temper tantrums as he has learnt to communicate his needs to others. Rachel became more patient and learnt to wait for her turn during activities and daily routines. She was able to wait for others to complete their verbal requests before carrying out her tasks.

There were three limitations to this study. First, there were only three participants in the study. Future research should involve more participants so as to see the benefits of using scripted play to teach speech production. Second, peers who have relatively good speech production (MLU six and above) could have participated in the scripted play. Peer learning could have boosted the three participants' speech production faster. Future research may want to include peers in scripted play interventions to compare the effects of speech production with training of participants alone. Third, there was no follow-up data in other settings. Future research could include maintenance and generalization data in settings other than the classroom (e.g. home and public settings) to see the benefits of the use of scripted play in speech production in the long run.

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## APPENDIX

### Grocery Shop Scene

Store owner: Good morning!

Customers 1 & 2: Good morning!

Store owner: Can I help you?

Customer 1: I want some apples please.

Customer 2: I want some potatoes please.

Store owner: Anything else?

Customer 1: I want some milk and eggs please.

Customer 2: I want some coffee and sugar please.

Store owner: Is that all?

Customers 1 & 2: Yes. That's all.

Store owner (to Customer 1): Apples, milk and eggs for you. That will be \$5.20 please.

Customer 1: Here is the money.

Store owner: Thank you.

Customer 1: You are welcome!

Store owner (to Customer 2): Potatoes, coffee and sugar for you. That will be \$4.80 please.

Customer 2: Here is the money.

Store owner: Thank you.

Customer 2: You are welcome!

### Elevator Scene

Boy 1: Here comes the lift!

Boy 2: Which level are you going?

Girl: I am going to level 5.

Boy 1: I am going to level 8.

Boy 2 (presses buttons) Level 3 for me and levels 5 and 8 for you.

Boy 1 and Girl: Thank you.

Boy 2: You are welcome.

(Lift reaches level 3)

Boy 2: See you! Have a good day!

Boy 1 and Girl: You too. Bye!

(Lift reaches level 5)

Girl: See you!

Boy 1: Bye!

### **Food Court Scene**

Food vendor: Can I help you?

Customer 1: I want some fried noodles please.

Food vendor: Fried noodles with chilli?

Customer 1: Yes, please.

Food vendor: Any drinks for you?

Customer 1: I want a Coke, please.

Food vendor: Anything else?

Customer 1: No, thanks.

Food vendor: That will be \$5.00 please.

Customer 1: Here is the money.

Food vendor: Thank you.

Customer 1: You are welcome.

(Customer 1 walks away with food and drink)

Food vendor: Can I help you?

Customer 2: I want some curry rice please.

Food vendor: Do you want chicken or beef curry?

Customer 2: I want chicken curry please.

Food vendor: Anything else?

Customer 2: I want some vegetables please.

Food vendor: Any drinks for you?

Customer 2: I want ice tea, please.

Food vendor: Anything else?

Customer 2: No, thanks.

Food vendor: That will be \$8.50 please.

Customer 2: Here is the money.

Food vendor: Thank you.

Customer 2: You are welcome.

(Customer 2 walks away with food and drink)